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# MEDICAL CERTIFICATION OF CAUSE OF DEATH

## Preface

The Medical Certificate of Cause of Death, apart from being an important legal document detailing the fact and circumstances of death, is the source of information used in Australia (and most other countries) for the preparation of statistics of causes of death. These statistics are widely used in assessing public health problems and for medical research.

Officers of the Australian Bureau of Statistics (ABS) select from the statement of cause of death, which is reported on the certificate, the **'underlying cause of death'** and classify this cause according to the World Health Organisation's International Classification of Diseases, Injuries and Causes of Death.

**The quality of the resulting statistics of causes of death depends on the ability of the certifier to present his opinion as to the sequence of events leading directly to death in a manner which will ensure that his opinion is conveyed clearly to the officers of the ABS.** It is with this point that this booklet is concerned, for application of care and judgement in the completion of the medical certificate can enhance the quality of the statistics and minimise the need for ABS staff to refer back to the certifying doctor for additional information when inadequate, partial, or vague information about the cause of death has been reported.

ABS officers can be contacted on the number given in the back of this booklet for advice as to the correct method of reporting causes of death to meet statistical requirements; for assistance in relation to the use of the International Classification of Diseases, Injuries and Causes of Death; as to the availability and correct interpretation of statistical series on causes of death in Australia; or for further copies of this booklet, if required.

Health Statistics Unit
ABS BRISBANE
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## INTRODUCTION

The Ninth Revision (1975) of the International Classification of Diseases, Injuries and Causes of Death has been used for classifying causes of death for Australian statistics from 1 January 1979. This revision of the International Classification, has a number of disease categories and sub-categories to meet the demands of specialists, public health authorities and research workers. In order to be able to assign causes of death correctly to this detailed classification, precision is required in the completion of the information on the Certificate of Cause of Death.

This booklet sets out the principles which should be kept in mind when completing the sections of the relevant certificates dealing with the cause of death, and specifies particular disease conditions about which additional information is frequently required for precise classification.

In a large proportion of cases, a sequence of morbid events will have led to death. From the standpoint of prevention of deaths, the most effective objective is to prevent the precipitating cause from operating, and for this reason, the World Health Organization has recommended that the underlying cause of death should be tabulated by all countries. The underlying cause has been defined as:

**(a) the disease or injury which initiated the train of morbid events leading directly to death,**

**or**

**(b) the circumstances of the accident or violence which produced the fatal injury.**

(Since, in Australia, deaths due to injury usually must be reported to, and certified by, a coroner, this booklet deals primarily with certification where disease caused death.)

In order to ensure uniformity in classification, it is essential that the complete sequence of events be reported on the certificate. Certain diseases commonly give rise to more than one complication, which in turn can lead to death, and the International Classification provides categories for classifying combinations of these diseases and the complications, to furnish more information on how the underlying cause led to death.

There are two types of death certificate in use in Australia, and each of these is dealt with separately. Section 1 of this booklet relates to the completion of the standard death certificate; Section 2 relates to the completion of the perinatal death certificate which is used for foetal deaths and deaths occurring within twenty-eight days after birth. Two other sections, Principal Deficiencies in Reporting (Section 3 ), and List of Terms Inadequate for Classification of Causes of Death (Section 4) have been included in the booklet so that certifiers may be aware of the extent of qualifying medical information which is needed for the accurate classification of the underlying cause of death.

## SECTION 1

## STANDARD DEATH CERTIFICATE

The form of cause of death question reproduced below is that recommended by the World Health Organization for international use, and is the form of question used on certificates of cause of death by all Australian States and Territories.

**INTERNATIONAL FORM OF MEDICAL CERTIFICATE OF CAUSE OF DEATH**

| | CAUSE OF DEATH | Approximate interval between onset and death |
|---|---|---|
| I<br>*Disease or condition directly leading to death** | *(a)* . . . . . | . . . . . |
| | due to (or as a consequence of) | |
| *Antecedent causes*<br>Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last | *(b)* . . . . . | . . . . . |
| | due to (or as a consequence of) | |
| | *(c)* . . . . . | . . . . . |
| | due to (or as a consequence of) | |
| | *(d)* . . . . . | . . . . . |
| II<br>*Other significant conditions* contributing to the death, but not related to the disease or condition causing it | . . . . . | . . . . . |
| | . . . . . | . . . . . |
| * This does not mean the mode of dying, e.g., heart failure, asthenia etc. It means the disease, injury or complication which caused death. | | |

This form of question is designed so that doctors will record their opinion on the morbid conditions leading to death in a way which presents the underlying cause of death and associated conditions in a clear and logical manner. When a certificate is completed correctly, the selection of the underlying cause of death is simplified and, where a number of conditions were involved in the sequence of events leading to death, the association of the various conditions is clearly indicated, thus enabling accurate classification.

It is essential that doctors report all significant diseases and/or conditions which led or contributed to death, and complete the section of the certificate which is provided for reporting the approximate interval between the onset of these conditions and death.

**Part 1, Line (a), Disease or condition directly leading to death**

Enter on line 1 (a) the direct cause of death, that is the disease or complication which led directly to death. Although the World Health Organization recommended form states that "This does not mean the mode of dying, e.g. heart failure, asthenia, etc.", these may be entered in line 1 (a) as long as a disease or injury is recorded on line 1 (b). This will allow some doctors to clearly indicate the chain of events that led to death. There must always be an entry on line 1 (a). If the condition reported on line 1 (a) was not due to, or did not arise as a consequence of, any antecedent disease or injury, it should be the only condition reported in Part 1 of the certificate (see Example 8, page 8).

If the direct cause of death was a purely terminal condition, this should be stated (e.g. terminal hypostatic pneumonia) (see Example 4, page 6). The classification officers of the ABS are often uncertain as to whether a condition is terminal or arose independently of other conditions entered on the certificate.

**Part 1, Lines (b), (c) and (d), Antecedent causes**

If the direct cause of death on line 1 (a) was due to, or arose as a consequence of, some other disease, this disease should be entered on line 1 (b). The condition (if any) entered on line 1 (b) must be considered to have been antecedent to the direct cause in respect of time. **A condition should be regarded as being antecedent not only in an aetiological or pathological sense, but also where it is believed that this condition prepared the way for the direct cause by damage of tissues or impairment of function, even after a long interval.**

If the condition entered on line 1 (b) was itself due to, or arose as a consequence of, some other condition (in the same sense as described above), this other condition should be reported on line 1 (c). Similarly, a condition antecedent to that reported on line 1 (c) should be reported on line 1 (d) and so on. On no account must the starting point of the sequence be entered in Part II because of lack of space in Part 1.

When a certificate has been completed correctly, the underlying cause (i.e. the condition which started the train of events leading to death) will appear alone on the **lowest** used line of Part 1 and the conditions, if any, which arose as a consequence of this underlying condition will appear above it, one condition to each line, in ascending order of causal sequence.

Occasionally two independent diseases may be thought to have contributed equally to the fatal issue, and in such unusual circumstances they may be entered on the same line.

**Part II, Other significant conditions**

After completing Part 1, the certifier must consider whether there were any other significant conditions which, though not in the causal sequence in Part 1, contributed to the fatal outcome. If so, these conditions should be entered in Part II. Such conditions must not be related to the direct cause of death on line (a), but may be a by-product at some stage of the main sequence in Part 1 - e.g. Part 1 (a) Cerebral haemorrhage; (b) Arteriosclerosis; Part II Gangrene.

Normal pregnancy should be entered in Part II if it is thought to have contributed to the death (see Example 9, page 9).

**Interval between onset and death**

The interval between the onset of each condition entered on the certificate and the date of death, should be entered in the column provided. Where the time or date of onset is not known, the best estimate should be made. The unit of time should be entered in each case (for example, 5 minutes, 1 day, 3 weeks, 4 months, 2 years).

In a properly completed certificate, the interval between onset and death for the condition entered on line 1 (a) will never exceed that for the condition on line 1 (b) or 1 (c) or 1(d); nor will the interval for 1 (b) exceed that for 1 (c) or 1(d) since the sequence in Part 1 should always proceed upwards.

## Examples of method of completing the Standard Death Certificate

**1.** On 10 January a diagnosis of measles (rubeola) was made in a child aged 4 years. On 17 January bronchopneumonia (staphylococcal) developed and the child died 3 days later.

**INTERNATIONAL FORM OF MEDICAL CERTIFICATE OF CAUSE OF DEATH**

| | CAUSE OF DEATH | Approximate interval between onset and death |
|---|---|---|
| I<br>*Disease or condition directly leading to death** | (a) Bronchopneumonia (staphylococcal)<br>due to (or as a consequence of) | 3 days |
| *Antecedent causes*<br>Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last | (b) Measles<br>due to (or as a consequence of) | 10 days |
| | (c)<br>due to (or as a consequence of) | |
| | (d) | |
| II<br>*Other significant conditions* contributing to the death, but not related to the disease or condition causing it | | |
| * This does not mean the mode of dying, e.g., heart failure, asthenia etc. It means the disease, injury or complication which caused death. | | |

Here the direct cause of death was bronchopneumonia due to secondary-invading staphylococcus and therefore this condition must be mentioned.

**2.** Male aged 60 years who had a history of hypertension for 20 years and symptoms of ischaemic heart disease for 5 years, dropped dead at home. Cause of death was diagnosed as coronary occlusion, which was confirmed at autopsy.

**INTERNATIONAL FORM OF MEDICAL CERTIFICATE OF CAUSE OF DEATH**

| | CAUSE OF DEATH | Approximate interval between onset and death |
|---|---|---|
| I<br>*Disease or condition directly leading to death** | (a) Coronary occlusion<br>due to (or as a consequence of) | Immediate |
| *Antecedent causes*<br>Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last | (b) Coronary arteriosclerosis<br>due to (or as a consequence of) | 5 years |
| | (c) Hypertension (benign)<br>due to (or as a consequence of) | |
| | (d) | |
| II<br>*Other significant conditions* contributing to the death, but not related to the disease or condition causing it | | |
| * This does not mean the mode of dying, e.g., heart failure, asthenia etc. It means the disease, injury or complication which caused death. | | |

**3.** Female aged 59 years with a history of hypertension for 10 years was admitted to hospital for investigation following complaint of persistent headache for some weeks. Exploratory craniotomy on 24 March revealed she was suffering from an inoperable tumour of left temporal lobe. Biopsy showed tumour to be an astrocytoma. Patient died 18 May.

**INTERNATIONAL FORM OF MEDICAL CERTIFICATE OF CAUSE OF DEATH**

| | CAUSE OF DEATH | Approximate interval between onset and death |
|---|---|---|
| I *Disease or condition directly leading to death** | (a) Astrocytoma of left temporal lobe<br>due to (or as a consequence of) | Months |
| *Antecedent causes* Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last | (b)<br>due to (or as a consequence of) | |
| | (c)<br>due to (or as a consequence of) | |
| | (d) | |
| II *Other significant conditions* contributing to the death, but not related to the disease or condition causing it | Hypertension (benign) | 10 years |
| | | |
| * This does not mean the mode of dying, e.g., heart failure, asthenia etc. It means the disease, injury or complication which caused death. | | |

Hypertension was thought to have influenced the course of the illness unfavourably but was in no way related to the astrocytoma and, therefore, is reported in Part II.

**4.** Female, aged 80 years, tripped over a rug in her home and fell and sustained a fracture of the neck of the left femur. She had an operation for insertion of Smith-Petersen pin the following day. Four weeks later her condition deteriorated and she developed hypostatic pneumonia and died two days later.

**INTERNATIONAL FORM OF MEDICAL CERTIFICATE OF CAUSE OF DEATH**

| | CAUSE OF DEATH | Approximate interval between onset and death |
|---|---|---|
| I *Disease or condition directly leading to death** | (a) Terminal hypostatic pneumonia<br>due to (or as a consequence of) | 2 days |
| *Antecedent causes* Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last | (b) Fracture neck of femur (pinned)<br>due to (or as a consequence of) | 4 weeks |
| | (c) Tripped over rug at home<br>due to (or as a consequence of) | 4 weeks |
| | (d) | |
| II *Other significant conditions* contributing to the death, but not related to the disease or condition causing it | | |
| | | |
| * This does not mean the mode of dying, e.g., heart failure, asthenia etc. It means the disease, injury or complication which caused death. | | |

Where the underlying cause of death is due to external causes, a concise statement of the circumstances is required. Details of where (e.g. 'at home', 'at work', etc.) and how the injury was received should be given, if known.

**5.** Male aged 88 years was admitted to hospital on 7 February with a grossly enlarged liver. The liver was believed to have been enlarged for about one year. He had suffered a cerebral thrombosis 3 years earlier and was often mentally confused. He had a long history of mild asthma. Apart from vague abdominal discomfort he appeared to be comfortable but died on 9 February. The cause of the enlarged liver was not determined and autopsy was not performed.

**INTERNATIONAL FORM OF MEDICAL CERTIFICATE OF CAUSE OF DEATH**

| | CAUSE OF DEATH | Approximate interval between onset and death |
|---|---|---|
| I *Disease or condition directly leading to death** | (a) Hepatomegaly due to (or as a consequence of) | 1 year |
| *Antecedent causes* Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last | (b) Aetiology unknown due to (or as a consequence of) | |
| | (c) due to (or as a consequence of) | |
| | (d) | |
| II *Other significant conditions* contributing to the death, but not related to the disease or condition causing it | Asthma | Many years |
| | Senility | 3 years |
| * This does not mean the mode of dying, e.g., heart failure, asthenia etc. It means the disease, injury or complication which caused death. | | |

If the cause is unknown this should be stated. Otherwise the statistician will be obliged to send a query to the certifier.

**6.** Male aged 61 years was admitted to hospital with renal failure and died 10 days later. No autopsy was performed. Cause of renal failure was uncertain but was thought to be due to urinary obstruction as a result of a markedly hypertrophied prostate gland. The patient suffered from rheumatoid arthritis for 20 years.

**INTERNATIONAL FORM OF MEDICAL CERTIFICATE OF CAUSE OF DEATH**

| | CAUSE OF DEATH | Approximate interval between onset and death |
|---|---|---|
| I *Disease or condition directly leading to death** | (a) Renal Failure due to (or as a consequence of) | 10 days |
| *Antecedent causes* Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last | (b) Hypertrophy of prostate (benign) due to (or as a consequence of) | some years |
| | (c) due to (or as a consequence of) | |
| | (d) | |
| II *Other significant conditions* contributing to the death, but not related to the disease or condition causing it | Rheumatoid arthritis | 20 years |
| | | |
| * This does not mean the mode of dying, e.g., heart failure, asthenia etc. It means the disease, injury or complication which caused death. | | |

The onus is placed on the medical practitioner to make a judgment as to the antecedent cause. If he wishes he may use qualifying phrases to show any uncertainty, e.g. 'Probably due to hypertrophy of prostate (benign)'.

7. Woman aged 39 years had two previous full term pregnancies although each had been accompanied in the later stages by signs of mild pre-eclamptic toxaemia. Her L.M.P. was early in February and the first ante-natal attendance was on 4 April. In spite of appropriate advice she failed to attend the hospital until 7 October. By this time her weight had increased by over 12 kg. She had marked oedema, her urine showed gross albuminuria and she complained of headaches and visual disturbances. She had suffered a slight fit that afternoon. She was immediately admitted as an early case of eclampsia but in spite of intensive treatment suffered 3 more fits and died. Autopsy revealed a large cerebral haemorrhage.

INTERNATIONAL FORM OF MEDICAL CERTIFICATE OF CAUSE OF DEATH

| | CAUSE OF DEATH | Approximate interval between onset and death |
|---|---|---|
| I<br>*Disease or condition directly leading to death** | (a) Cerebral haemorrhage<br>due to (or as a consequence of) | 3 hours |
| *Antecedent causes*<br>Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last | (b) Eclampsia<br>due to (or as a consequence of) | 1 day |
| | (c) Toxaemia of pregnancy (pre-eclamptic)<br>due to (or as a consequence of) | 1 month |
| | (d) | |
| II<br>*Other significant conditions* contributing to the death, but not related to the disease or condition causing it | | |
| * This does not mean the mode of dying, e.g., heart failure, asthenia etc. It means the disease, injury or complication which caused death. | | |

8. A male aged 39 years was admitted to hospital following onset of a sudden intense headache, vomiting and vertigo. There was a history of previous migraine attacks. His condition rapidly deteriorated, he became restless, delirious, showed signs of hemiplegia and became comatose. Lumbar puncture confirmed the presence of a subarachnoid haemorrhage. He died 8 hours after the onset of the headache.

INTERNATIONAL FORM OF MEDICAL CERTIFICATE OF CAUSE OF DEATH

| | CAUSE OF DEATH | Approximate interval between onset and death |
|---|---|---|
| I<br>*Disease or condition directly leading to death** | (a) Subarachnoid haemorrhage<br>due to (or as a consequence of) | 8 hours |
| *Antecedent causes*<br>Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last | (b)<br>due to (or as a consequence of) | |
| | (c)<br>due to (or as a consequence of) | |
| | (d) | |
| II<br>*Other significant conditions* contributing to the death, but not related to the disease or condition causing it | | |
| * This does not mean the mode of dying, e.g., heart failure, asthenia etc. It means the disease, injury or complication which caused death. | | |

The one condition describes sufficiently the sequence of events leading to death and there is no need to mention the manifestations.

9. A female aged 24 years, pregnant for 4 months, was admitted to hospital with sudden onset of hemiplegia. Her history revealed that she had suffered from rheumatic fever at the age of 10 years, and a diagnosis of mitral stenosis was made. On her second day in hospital the patient died.

**INTERNATIONAL FORM OF MEDICAL CERTIFICATE OF CAUSE OF DEATH**

| | CAUSE OF DEATH | Approximate interval between onset and death |
|---|---|---|
| I<br>*Disease or condition directly leading to death** | (a) Hemiplegia<br>due to (or as a consequence of) | 2 days |
| *Antecedent causes*<br>Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last | (b) Cerebral embolism<br>due to (or as a consequence of) | 2 days |
| | (c) mitral stenosis<br>due to (or as a consequence of) | 14 years |
| | (d) Rheumatic fever (inactive) | 14 years |
| II<br>*Other significant conditions* contributing to the death, but not related to the disease or condition causing it | Pregnancy | 4 months |
| | | |
| * This does not mean the mode of dying, e.g., heart failure, asthenia etc. It means the disease, injury or complication which caused death. | | |

Here the pregnancy clearly contributed to the death, but as it was not related to the pre-existing rheumatic heart disease, it should be in Part II of the certificate.

## SECTION 2

## PERINATAL DEATH CERTIFICATE

World Health Organization has recommended that all countries use a separate Certificate of Cause of Perinatal Death. A copy of the form, which is basically that recommended by WHO with some amendment to conform with local legal requirements, is shown on the next page. The form recommended by WHO seeks information on maternal obstetric history, with a view to identifying the type of cases needing the greatest care to avoid the occurrence of perinatal deaths. It will also be noted that the "sequence" system of reporting, used in the general medical certificate, has been abandoned for perinatal deaths.

**Please note that each State and Territory uses a slightly different version of this form and also, in all States and Territories, it is a legal requirement that the Medical Certificate of Cause of Perinatal Death be completed in respect of a child not born alive, of at least 20 weeks gestation or 400 grammes weight; rather than 22 weeks gestation or 500 grammes which is the WHO recommendation.**

### Statement of causes of death

The form of certificate provides five sections for the entry of causes of perinatal deaths, labelled (a) to (e). In sections (a) and (b) should be entered diseases or conditions of the infant or fetus, with the single most important one of these in section (a) and the remainder, if any, in section (b). By "the most important" is meant that pathological condition which in the opinion of the certifier made the greatest contribution to the death of the infant or fetus. The mode of death, e.g. heart failure, asphyxia, anoxia, should not be entered in section (a) unless it was the only fetal or infant condition known. This also holds true for prematurity.

In sections (c) and (d), the certifier should enter all diseases or conditions in the mother which in his opinion had some effect on the infant or fetus. The most important one of these should be entered in section (c) and the others, if any, in section (d). Section (e) is provided for the reporting of any other circumstances which the certifier considers to have a bearing in the death but which cannot be described as a disease or condition of the infant or the mother. An example of this might be delivery in the absence of an attendant.

# MEDICAL CERTIFICATE OF CAUSE OF PERINATAL DEATH

To be completed in respect of:

(i) a child not born alive, of at least ~~22~~ 20 weeks gestation or ~~500~~ 400 grammes weight;

(ii) a live born child dying within twenty-eight days after birth.

**Note: Please answer all questions and ✓relevant boxes thus ☑**

## A. Particulars relating to Mother

1. Full name _____ 2. Age _____ years

3. Address of usual residence _____

4. Number of previous pregnancies resulting in
   - All issue live born ☐☐
   - One or more issue born dead ☐☐
   - Abortion ☐☐

5. Outcome of last previous pregnancy
   - All issue live born ☐
   - One or more issue born dead ☐
   - Abortion ☐
   - Date of last previous pregnancy __/__/__

**Current pregnancy:**

6. Estimated duration of pregnancy was ____ completed weeks from first day of last menstrual period to date of delivery.

7. Antenatal care two or more visits
   - Yes ☐
   - No ☐
   - Not known ☐

8. Method of delivery
   - Spontaneous ☐
   - Forceps delivery ☐
   - Forceps and rotation ☐
   - Vacuum extractor ☐
   - Caesarian section ☐
   - Other surgical or instrumental ☐

9. Presentation
   - Vertex O.A. ☐ O.P. ☐
   - Brow ☐
   - Breech ☐
   - Face ☐
   - Shoulder ☐
   - Transverse ☐
   - Other (specify) _____ ☐

10. Attendant at birth
   - Physician ☐
   - Trained midwife ☐
   - Other trained person (specify) _____ ☐
   - Other (specify) _____ ☐

## B. Particulars relating to Child

11. Name if given _____ 12. Sex _____

13. Place of death _____ 14. Birthweight was _____ grammes.

15. This birth was: Single ☐ First twin ☐ Second twin ☐ Other multiple ☐

16. For child born alive: Time and date of birth was ____ a.m./p.m. on _____ (date). Date of death _____
    After delivery, heart beat ceased at _____ a.m./p.m. on _____ (date). Age _____

17. For child not born alive, time and date of delivery was ____ a.m./p.m. on _____ (date).

18. For child not born alive, heart beat ceased (a) before labour ☐ (b) during labour but before delivery ☐
    (c) before delivery but not known whether before or during labour ☐

19. If heart beat ceased before labour commenced, please estimate how long before: _____ days _____ hours

20. It is not known whether heart beat ceased before or after delivery ☐

| 21. CAUSES OF DEATH | State approximate interval between onset and death, if known |
|---|---|
| (a) Main disease or condition in fetus or infant | |
| (b) Other diseases or conditions in fetus or infant | |
| (c) Main maternal disease or condition affecting fetus or infant | |
| (d) Other maternal diseases or conditions affecting fetus or infant | |
| (e) Other relevant circumstances | |

22. Certified cause of death has been confirmed by autopsy ☐ Autopsy information may be available later ☐
    Autopsy not being held ☐

23. Post mortem carried out on _____

24. Post mortem ordered or authorised by _____ Coroner

25. If born alive, last attended by me on _____

I certify that, to the best of my information and belief, the particulars set out above are correct.

Signature _____ Prof. title _____

Surname (block letters) _____

Address _____

The following examples illustrate the statement of the cause of death for the cases described:

**Example 1.** The mother whose previous pregnancies had ended in spontaneous abortions at 12 and 18 weeks, was admitted when 24 weeks pregnant, in premature labour. There was spontaneous delivery of a 700 g infant which died during the first day of life. The main finding on autopsy was "pulmonary immaturity".

| CAUSES OF DEATH | |
|---|---|
| a. Main disease or condition in fetus or infant | Pulmonary immaturity |
| b. Other diseases or conditions in fetus or infant | ____ |
| c. Main maternal disease or condition affecting fetus or infant | Premature labour, cause unknown |
| d. Other maternal diseases or conditions affecting fetus or infant | Recurrent aborter |
| e. Other relevant circumstances | _____ |

**Example 2.** A primigravida aged 26 years with a history of regular menstrual cycles, received routine antenatal care starting at the 10th week of pregnancy. At 30-32 weeks, fetal growth retardation was noted clinically, and confirmed at 34 weeks. There was no evident cause apart from symptomless bacteriuria. A caesarean section was performed and a liveborn boy weighing 1600 g was delivered. The placenta weighed 300g and was described as infarcted. Respiratory distress syndrome developed which was responding to treatment. The baby died suddenly on the third day. Autopsy revealed extensive pulmonary hyaline membrane and massive intraventricular haemorrhage.

| CAUSES OF DEATH | |
|---|---|
| a. Main disease or condition in fetus or infant | Intraventricular haemorrhage |
| b. Other diseases or conditions in fetus or infant | Respiratory distress syndrome<br>Retarded foetal growth |
| c. Main maternal disease or condition affecting fetus or infant | Placental insufficiency |
| d. Other maternal diseases or conditions affecting fetus or infant | Bacteriuria in pregnancy<br>Caesarian section |
| e. Other relevant circumstances | _____ |

Example 3. A known diabetic was controlled during her first pregnancy with difficulty. She developed megaloblastic anaemia at 32 weeks. Labour was induced at 38 weeks. There was spontaneous delivery of an infant weighing 3200 g. The baby developed hypoglycaemia. There was death on the second day. Autopsy showed truncus arteriosus.

| CAUSES OF DEATH | |
|---|---|
| a. Main disease or condition in fetus or infant | Truncus arteriosus |
| b. Other diseases or conditions in fetus or infant | Hypoglycaemia |
| c. Main maternal disease or condition affecting fetus or infant | Diabetes |
| d. Other maternal diseases or conditions affecting fetus or infant | Megaloblastic anaemia |
| e. Other relevant circumstances | ——— |

**Example 4.** The patient was a 30 year old woman with a healthy four year old boy. There was a normal pregnancy apart from hydramnios X-ray at 36 weeks which suggested anencephaly. Labour was induced. A stillborn anencephalic fetus weighing 1500 g was delivered.

| CAUSES OF DEATH | |
|---|---|
| a. Main disease or condition in fetus or infant | Anencephaly |
| b. Other diseases or conditions in fetus or infant | —— |
| c. Main maternal disease or condition affecting fetus or infant | Hydramnios |
| d. Other maternal diseases or conditions affecting fetus or infant | — |
| e. Other relevant circumstances | — |

## SECTION 3

## PRINCIPAL DEFICIENCIES IN REPORTING

If the information required for precise classification of cause of death is not provided on the death certificate, the ABS is obliged to seek the required additional information from the certifier.

Indefinite terms and abbreviations should not be used, nor should terms which describe symptoms unless further explained or qualified. Where a term describes a morbid condition which could result from several types of infection or poison, the certifier should report the causative agent or if this is unknown, enter the words 'cause unknown'.

Writing should be legible. (Printing is preferred.) Many terms are difficult to distinguish unless written clearly, and illegible writing may result in incorrect classification. The following are examples of terms which are difficult to distinguish:

| | |
|---|---|
| Cardio/cerebro | Heart/heat |
| Congenital/congestive | Silicosis/scoliosis |
| Coronary/cerebral | Valvular/vascular |

When reporting the cause of death of a person to a Coroner, the cause should be reported in the same manner as on a death certificate to enable the coroner to furnish the cause in this form.

It is appreciated that the medical practitioner cannot know by instinct what detail is required for classification purposes. To aid him, groups of diseases and conditions for which the required detail is often lacking are dealt with below, followed by a list of the more important inadequate descriptions, with the required detail indicated. Appreciation of the deficiencies indicated will to a large extent eliminate the need for further inquiries from the ABS.

### Neoplasms

Neoplasms are classified according to whether benign or malignant, and by site. Hence the terms 'neoplasm', 'growth' and 'tumour' should not be used without qualifications as to whether malignant or benign and the site should always be indicated. The histological type should also be stated whenever this is known.

In the case of malignant neoplasms, it is necessary to know the site of the primary growth, even though the primary growth may have been removed long before death. If the primary site is unknown, this fact should be stated on the certificate. The precise site should be indicated. In particular, distinguish between corpus and cervix uteri, parts of the intestinal tract, mouth and throat. For neoplasms of bone, if the histological type is not stated, the kind of tissue of origin (e.g. marrow, osseous tissue) should be indicated.

### Operations

Do not enter the name of an operation as a cause of death, without stating the condition for which the operation was performed. (Note: In most areas, death following operation must be reported to a coroner for investigation.)

### Pregnancy

If a woman dies during pregnancy or within 6 weeks after childbirth, this should be indicated on the certificate, even if the direct cause of death was completely unrelated to the pregnancy or childbirth.

### Hypertension

It is important to indicate whether hypertension was malignant or benign, and any associated organ involvement.

### Infective and parasitic diseases

Where possible, give the name of the causative agent, if the disease name does not make this obvious. If the agent is unknown, enter the words 'cause unknown'.

**Perinatal deaths**

In certifying causes of perinatal deaths, please take careful note of the following points:

*Congenital malformations*

Please specify the organ and part of organ involved unless this is obvious from the name of the malformation.

*Birth injuries*

Please state the organ involved, type of injury (e.g. haemorrhage, tear), under "conditions in fetus or infant"; and the cause of the injury (e.g. abnormality of pelvis, malposition of fetus, abnormal forces of labour), under "maternal diseases or conditions".

*Prematurity*

If possible, please state the complication directly causing death.

*Conditions in the mother*

Please indicate whether or not any disease condition present in the mother was related to pregnancy. For example, conditions such as hypertension and pyelonephritis should be qualified as to whether they arose during pregnancy or were present before pregnancy.

**Accidental deaths**

When a medical practitioner has occasion to certify an accidental death, it is necessary to state the circumstances of the accident, but care should be taken to determine whether such certification is legal.

## SECTION 4

## LIST OF TERMS INADEQUATE FOR CLASSIFICATION OF CAUSES OF DEATH

| Term | Additional information required |
|---|---|
| Abscess | (i) Site<br>(ii) Cause |
| Agranulocytosis | Cause. If due to drug therapy, specify condition for which drug given. |
| Anaemia | Whether: primary (specify type)<br>secondary (specify cause) |
| Aneurysm | (i) Site (e.g. cerebral, aortic)<br>(ii) Cause (e.g. syphilitic)<br>(iii) Ruptured or unruptured |
| Antepartum haemorrhage | Cause (e.g.coagulation defects, placenta praevia) |
| Anoxia | Cause (and if fetal, whether before or during labour) |
| Appendicitis | (i) Whether: acute<br>chronic<br>(ii) Whether: with peritonitis or abscess |
| Arteriosclerosis | (i) If associated with hypertension, specify type (e.g. benign, malignant)<br>(ii) Arteries involved (e.g. coronary, cerebral) |
| Arteritis | (i) Arteries involved<br>(ii) Cause (e.g. arteriosclerotic, syphilitic) |
| Arthritis | (i) Type<br>(ii) Cause<br>(iii) Site |
| Asphyxia | Cause (and, if fetal, whether before or during labour) |
| Atelectasis | Cause |
| Atheroma | Site (e.g. coronary, aortic, valvular) |
| Birth injury | (i) Site<br>(ii) Type of injury<br>(iii) Cause |
| Bronchitis | (i) Whether: acute<br>chronic<br>(ii) Whether: asthmatic<br>emphysematous<br>allergic |
| Bronchopneumonia | (i) Causative agent<br>(ii) Whether: hypostatic<br>terminal<br>(iii) Contributing disease or condition |
| Cachexia | See 'Malnutrition' |
| Calculus | Site |
| Cancer, carcinoma | See Section 3, page 14 |

| Term | Additional information required |
|---|---|
| Cardiac: failure<br>dilation<br>hypertrophy | Disease causing this condition |
| Cardiovascular disease | (i) Specific disease condition<br>(ii) Whether hypertensive |
| Carditis | (i) Whether of: myocardium<br>endocardium<br>pericardium<br>(ii) Whether: acute<br>rheumatic |
| Cerebral degeneration | Cause |
| Cerebral effusion | Cause |
| Cerebral sclerosis | Whether arteriosclerosis or disseminated sclerosis |
| Cerebrospinal meningitis | Whether: meningococcal<br>tuberculous<br>other organism (specify) |
| Chorea | Whether: rheumatic<br>with heart involvement<br>without heart involvement<br>Huntington's<br>gravidarum |
| Cirrhosis of liver | Cause (e.g. alcoholic) |
| Cor pulmonale | Underlying cause, and whether acute or chronic |
| Coryza | Complication leading to death |
| Curvature of spine | (i) Whether: acquired (e.g. tuberculous)<br>congenital<br>(ii) Whether: with heart disease and/or hypertension |
| Debility | Cause |
| Deep venous thrombosis | (i) If following an operation, condition for which operation performed<br>(ii) If due to inactivity, the condition causing the inactivity |
| Dementia | Cause (e.g. senile, alcoholic, arteriosclerotic) |
| Dermatitis | (i) Type<br>(ii) Cause |
| Diarrhoea | Cause (if unknown, whether believed infectious or not) |
| Dysentery | Whether: amoebic (and, if so, whether acute or chronic)<br>bacterial<br>other protozoal |
| Embolism | (i) Site<br>(ii) Cause |
| Encephalitis | Whether: acute viral<br>late effect of viral<br>postvaccinal<br>idiopathic<br>meningococcal<br>suppurative<br>tuberculous |

| Term | Additional information required |
|---|---|
| Endocarditis | (i) Whether: acute or chronic<br>(ii) Part mainly affected<br>(iii) Cause (e.g. rheumatic, bacterial) |
| Fatty degeneration | Site (e.g. of heart or liver) |
| Gangrene | (i) Whether: arteriosclerotic<br>diabetic<br>due to gas baciillus<br>(ii) Site |
| Goitre | Whether: simple<br>toxic<br>diffuse<br>uninodular<br>multinodular |
| Haematemesis | Cause |
| Haemorrhage | (i) Site<br>(ii) Cause |
| Hemiplegia | Cause of lesion and whether late effect |
| Hepatitis | Whether: acute or chronic<br>alcoholic<br>of newborn<br>of pregnancy, childbirth or puerperium<br>viral (and if so, whether Type A, Type B or Type C) |
| Hydrocephalus | Whether: congenital<br>acquired, and if so, the cause |
| Hypertension | (i) Whether: benign<br>malignant<br>associated with pregnancy<br>(ii) Whether with: heart involvement<br>cerebrovascular involvement<br>renal involvement |
| Immaturity | (i) Cause<br>(ii) Complication leading to death |
| Influenza | Whether: with pneumonia<br>with other manifestation (specify) |
| Intestinal obstruction, occlusion, stenosis or stricture | Cause |
| Leukaemia | (i) Whether : acute, subacute or chronic<br>(ii) Type e.g. lymphatic<br>myeloid<br>monocytic |
| Liver failure | Cause |
| Lymphadenitis | Cause (e.g. tuberculous, septic wound) |
| Lymphoma | Whether: Hodgkin's disease<br>Brill-Symmers disease |
| Malignant neoplasm | See Section 3, page 14 |

| Term | Additional information required |
|---|---|
| Malnutrition | (i) Whether: congenital<br>due to deprivation<br>due to disease (specify)<br>(ii) Type of deficiency (e.g. protein, Vitamin A) |
| Melaena | Cause |
| Meningitis | Whether: meningococcal<br>tuberculous<br>other organism (specify) |
| Mental retardation | Underlying physical condition |
| Myocarditis | (i) Whether: acute or chronic<br>(ii) Cause (e.g. rheumatic fever, arteriosclerosis |
| Neoplasm | See Section 3, page 14 |
| Nephritis | (i) Whether: acute<br>sub-acute<br>with oedema<br>chronic<br>(ii) Cause if infective or toxic<br>(iii) Whether associated with: hypertension<br>arteriosclerosis<br>heart disease<br>pregnancy |
| Obstruction of intestine | (i) Cause<br>(ii) If paralytic following operation, state condition for which operation performed |
| Oedema of lungs | (i) Whether: acute<br>hypostatic<br>secondary to heart disease<br>with hypertension<br>(ii) If hypostatic or terminal, specify conditions necessitating inactivity |
| Paget's disease | Whether of: bone<br>breast<br>skin (specify site) |
| Paralysis, paresis | (i) Cause (e.g. due to birth injury, syphilis)<br>(ii) Precise form (e.g. infantile, agitans) |
| Paralytic ileus | Cause |
| Pelvic abscess<br>Parimetritis<br>Peritonitis<br>Phlebitis | Cause, particularly whether due to puerperal or post-abortive infection |
| Peptic ulcer | Whether: stomach<br>duodenum |
| Pleural effusion | Cause, particularly whether tuberculosis |
| Pneumoconiosis | Whether: silicosis<br>anthracosilicosis<br>asbestosis<br>associated with tuberculosis<br>other (specify) |

| Term | Additional information required |
|---|---|
| Pneumonia | (i) Organism<br>(ii) If hypostatic or terminal, specify underlying cause |
| Pneumothorax | Cause |
| Prematurity | (i) Cause<br>(ii) Complication leading to death |
| Pulmonary embolism | (i) If following an operation, condition for which operation performed<br>(ii) If due to inactivity, the condition causing the inactivity |
| Pulmonary oedema | Cause |
| Renal disease or failure | (i) Precise condition<br>(ii) Cause<br>(iii) Whether: with malignant hypertension<br>with benign hypertension |
| Respiratory infection | Precise nature and location |
| Rheumatic fever | (i) Nature of heart disease<br>(ii) Whether rheumatic fever active at death |
| Rickets | Whether: active<br>late effects<br>fetal<br>renal<br>scurvy |
| Rodent ulcer | Site |
| Sclerosis | Whether: arterial<br>coronary<br>cerebral (specify whether disseminated or arteriosclerosis)<br>disseminated<br>spinal (lateral, posterior)<br>renal |
| Scoliosis | (i) Whether : acquired (e.g. tuberculous)<br>congenital<br>(ii) Whether with heart disease and/or hypertension |
| Senility | More specific information, if available |
| Septicaemia | (i) Cause<br>(ii) Organism |
| Septic infection | If localised, specify type |
| Silicosis | Whether associated with tuberculosis |
| Softening of brain | Cause (e.g. embolism) |
| Spondylitis | Whether: ankylosing<br>deformans<br>sacro-iliac<br>gonococcal<br>tuberculous |
| Stenosis, stricture | (i) Site<br>(ii) Whether: congenital<br>acquired (specify cause) |

| Term | Additional information required |
|---|---|
| Syphilis | (i) Organ affected<br>(ii) Whether: congenital<br>early or late |
| Tetanus | Mode of infection: following slight injury<br>following major injury<br>puerperal |
| Thrombosis | (i) Whether: arterial (specify artery)<br>intracranial sinus :<br>pyogenic<br>non-pyogenic<br>late effect<br>post-abortive<br>puerperal<br>venous (specify site)<br>portal<br>(ii) If post-operative or due to confinement in bed, specify condition which necessitated operation or immobilisation |
| Toxaemia | (i) Cause<br>(ii) If of pregnancy, distinguish: albuminuria<br>eclampsia<br>hyperemesis<br>hepatitis<br>hypertension<br>pre-eclampsia |
| Tuberculosis | (i) Primary site<br>(ii) Associated pneumoconiosis if present |
| Tumours | See Section 3, page 14 |
| Ulcer | (i) Site<br>(ii) Whether perforated or not |
| Uraemia | (i) Cause<br>(ii) Associated childbirth or pregnancy |
| Upper respiratory tract infection | Complication leading to death |
| Valvular disease | (i) Valve(s) affected<br>(ii) Acute or chronic<br>(iii) If lesion of rheumatic origin, whether rheumatic fever was active at time of death<br>(iv) If lesion of non-rheumatic origin, specify cause |
| Vascular disease | (i) Nature (e.g. hypertensive, peripheral)<br>(ii) Cause |
| Yellow atrophy of liver | Cause (e.g. acute infective hepatitis, post-immunisation, post-transfusion, toxaemia of pregnancy or of puerperium) |

## CONTACT WITH THE AUSTRALIAN BUREAU OF STATISTICS

Processing of all cause of death information for Australia is now carried out in the Queensland office of the ABS. In the past, cause of death processing was carried out in each of the ABS offices.

This decision to centralise processing came about due to the recognition by the ABS of the benefits which would accrue from concentration and preservation of expertise in coding, more staff backup, consistency in coding and training (resulting in improved data quality) and a more efficient processing system resulting from economies of scale.

The Queensland office was chosen as the location for centralised processing because of its expertise in a range of health statistics and its relationship with the Australian Institute of Health and Welfare's National Reference Centre for Classifications in Health, located at the Queensland University of Technology.

ABS officers can be contacted in relation to any matters concerning Cause of Death processing or data available on

**Toll Free No. 008 806 415**

or by writing to

**AUSTRALIAN BUREAU OF STATISTICS**
**HEALTH STATISTICS UNIT**
**GPO BOX 9817**
**BRISBANE Q 4001**

or by facsimile

**FAX. NO. 07 - 2296171**